

**What is claimed is:**

1. A method for processing an olefin stream containing oxygenates and water, comprising:
  - providing an olefin stream containing oxygenates and water;
  - dewatering the olefin stream;
  - compressing the dewatered olefin stream;
  - washing the olefin stream with methanol to remove at least a portion of the oxygenate from the olefin stream;
  - contacting the methanol washed olefin stream with water; and
  - fractionating the water contacted olefin stream.
2. The method of claim 1, further comprising drying the water contacted olefin stream prior to fractionating.
3. The method of claim 1, wherein the washing the olefin stream with methanol to remove at least a portion of the oxygenate from the olefin stream; and the contacting the methanol washed olefin stream with water is carried out in a single wash column.
4. The method of claim 1, wherein the dewatered olefin stream is compressed to form a condensate containing dissolved heavy oxygenates and a gaseous olefin stream which is washed with the methanol.
5. The method of claim 4, further comprising sending the condensate to a stripping column in which an overhead product of light hydrocarbons and a bottom product of C<sub>5</sub>+ hydrocarbons and heavy oxygenates are obtained.
6. The method of claim 5, wherein the overhead product of light hydrocarbons is sent to at least one compression step.